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AUTHOR Parker, Franklin
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ABSTRACT

The author explores the evolution/creation conflict and suggests what educators might do to fulfill their responsibilities with the least offense to the religious beliefs of creationists and with respect for students' right to understand their Western scientific heritage. The paper begins with a history of the confict between creationists and those who believe in evolution. The author explores the movement of evangelical fundamentalists who in the 1920s sought to dislodge evolution and in the 1980s seek equal time for creation science alongside evolution theory. Going back before Darwin to the early church, this dispute is long range over the origin, nature, and future of man, and the universe. It has often been expressed in clashes between religion and science, fundamentalism and modernism, and now born again evangelism and secular humanism. Court cases are described. Creationist organizations and strategies are discussed. Recolutions and policy statements of various groups are included and arguments for and against evolution, scientific creation, and equal time are presented. The last part of the paper talks about what educators can do. School districts should anticipate and prepare early for problems likely to arise. A "Procedures Committee" charged with dealing with conflict situations should be organized. This committee should assemble, maintain, and make available a library of information on evolution/creation and gauge community feelings. Clear procedures to reduce conflict, such as having complaints written and signed, should be articulated. (Author/RM)

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WHY THE EVOLUTION/CREATION BATTLE RAGES: WHAT EDUCATORS CAN DO

By

Franklin Parker

October 1, 1981

Franklin Parker
Bendum Professor of Education
602 Allen Hall, Evansdale Campus
West Viriginia University
Morgantown, WV 26506

Office: (304) 293-3441/2
Home: (304) 599-1935

SP 013 631

Franklin Parker
Benedum Professor of Education
602 Allen Hall, Evansdale Campus
West Virginia University
Morgantown, West Virginia 26506

October 1, 1981

Office: (304) 293-3441/2
Home: (304) 599-1935

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Abbreviations

ABT	American Biology Teacher (journal)
ACLU	American Civil Liberties Union
ASA	American Scientific Affiliation
BSA	Bible Science Association
BSCS	Biological Sciences Curriculum Study
CRS	Creation Research Society
CSRC	Creation Science Research Center
ICR	Institute for Creation Research
KKK	Ku Klux Klan
MACOS	Man: A Course of Study
NABT	National Association of Biology Teachers
NASA	National Aeronautics and Space Administration
NEA	National Education Association
NSF	National Science Foundation
WCFA	World's Christian Fundamentals Association

Introduction

The formation in 1980 of the Moral Majority with the Rev. Jerry Falwell of Lynchburg, Va., as president marked the significant emergence of the evangelical right and a renewal of fundamentalist religious thought in America. Directly related were three legal events in 1981 in which creationists--who believe in a literal Genesis account of the origin of man, the earth, and the universe--want creation taught along with evolution in public schools.

On March 6 in Segraves v. California creationists gained national attention when a state Superior Court judge required wider distribution of a 1973 California Department of Education ruling that evolution is a theory about which scientists only hypothesize. Arkansas on March 23 and Louisiana on July 21 adopted laws requiring equal time for the teaching of "evolution theory" and "creation science." Similar bills being considered in 21 states are based on a model reportedly developed by Institute for Creation Research (ICR) lawyer Wendell R. Bird and promoted nationally by South Carolinian Paul Ellwanger's Citizens Against Federal Establishment of Evolutionary Dogma. The model equal time evolution/creation teaching bill carefully omits reference to religion and God in order to withstand constitutional challenge of church and state separation. ICR wants a similar bill introduced in the U.S. Congress to halt evolution lectures in national parks and museums and to make "creation science" based on Genesis eligible for research grants.

That the U.S. is in the midst of a strong conservative upsurge became evident when conservatives in the 1980 elections successfully targeted for defeat ———————————— liberal federal, state, and local office holders. Observers note that the evangelical right, achieving unusual political influence, encourages fellow creationists to dislodge evolution and, by implication, to weaken science in the public schools and thus strike at "secular

humanism" on which is blamed such evils as crime, drugs, abortion, women's rights, and homosexuality.

The author explores this sensitive, rising, and potentially explosive movement of dedicated evangelical fundamentalists who in the 1920s sought to dislodge evolution and in the 1980s seek equal time for creation science alongside evolution theory. Going back before Darwin to the early church, this dispute is a long range one over the origin, nature, and future of man and the universe. It has often been expressed in clashes between religion and science, fundamentalism and modernism, and now born again evangelism and secular humanism. Obviously a clear and fair account with objective attention to motives and tactics is difficult to achieve in limited time and space. The author, who has learned much from research for this writing experience, accepts responsibility for errors of fact and interpretation. He sincerely thanks those who helped in any way.

This, then, is one educator-writer's attempt to understand the evolution/creation controversy and reasons why the issue has become crucial in the 1980s. He suggests what educators might do to fulfill their responsibilities with least offense to the religious beliefs of creationists and with respect for students' right to understand their Western scientific heritage.

BRIEF HISTORY OF THE EVOLUTION/CREATION CONFLICT

Before Darwin

Some people have always preferred to believe that the world is stable and unchanging, others that human life emerged from earlier living things which have continually changed. Early precursors of evolution included Greek philosopher Epicurus and Roman poet Lucretius. St. Augustine interpreted Biblical creation as symbolic rather than literal and thought that organisms

created at the beginning may have evolved since. Carl Linnaeus, 18th century Swedish founder of systematic biology, classified thousands of animal and plant types, including apes, monkeys, and man, which he placed next to one another but not as a consequence of common descent. Following Linnaeus' classification of this great "chain of being," scholars who cautiously suggested evolution to explain the growth from simple to complex life forms included, among others, French philosopher Rene Descartes, French naturalist Count de Buffon, and English naturalist Erasmus Darwin, grandfather of Charles Darwin.

Darwin

Young Charles Darwin (1809-82) spent five years as naturalist on H.M.S. Beagle (1831-36), British ship on a round-the-world scientific expedition, the source and inspiration for his later theory of evolution based on natural selection. He married, raised a family, and, often ill, lived quietly as a scholar in Down , Kent, England. Sketching his theory in 1842 and expanding it on May 14, 1856, he was surprised by Alfred Russel Wallace's letter of June 18, 1858, containing a summary identical to his own theory of evolution. By arrangement of Charles Lyell and Joseph Hooker, both Darwin's and Wallace's papers were read at a meeting of the Linnean Society on July 1, 1858, both published August 20, 1859.

Darwin's fuller account, Origin of Species by Means of Natural Selection; or The Preservation of Favoured Races in the Struggle for Life, published November 24, 1859, evoked opposition from religious leaders because, instead of divine creation, his evidence suggested that life had evolved gradually by natural selection as better adapted life forms survived and less well adapted ones died out.

Darwin's theory of evolution emerged in a time of political and social change. The beheading of Charles I (1600-49) marked the end of the divine right of English monarchs. The end of Cromwellian rule, the Enlightenment, the French

and American Revolutions, and Britain's industrial revolution all led to the rise of a new middle class, illustrated by Darwin's own grandfather, Josiah Wedgwood, a potter's apprentice who by great effort became a successful 18th century industrialist. England's 1832 Reform Law, the period's chief reform legislation, passed when Darwin was a young man, was based on Jeremy Bentham's "greatest happiness for the greatest number." Also, key European cities were rocked by middle class revolutions in 1848. Socio-economic and political changes challenged previous notionsof fixed classes and static conditions. Furor over Darwinian evolution was part of a conservative religious backlash to new ideas and progress.

American Reaction[1]

American reaction, delayed by the Civil War, was heightened by Herbert Spencer's substitution of "survival of the fittest" for Darwin's "natural selection," an interpretation which favored unregulated individual and social competition. Conservatives also disliked Karl Marx's use of natural selection as scientific justification for economic class war and revolution.

American religionists disliked evolution theory because it seemingly contradicted Genesis, caused doubt about divine guidance, and substituted a natural process for a Creator's grand design. They were further upset by largely German late 19th century higher Bible criticism which offered evidence that the Bible was written by mortals in different times and cultures and included myths, legend, fictions, and even forgeries.

Modernists who accepted Darwinian evolution, science, higher Bible criticism, and the social gospel (more secular state intervention to uplift the lower classes) became dominant. In reaction, fundamentalists, believing in Genesis six-day creation, organized (they had originated from earlier millenarians who believed in Christ's second coming) annual Bible

conferences in Niagara, New York, from 1868. The famous 1895 conference issued a five-point affirmation of Christian doctrine: (1) Biblical infallibility, (2) Jesus' divinity, (3) Jesus' virgin birth, (4) Christ's absolution of man's sin, and (5) Christ's resurrection and second coming. These were the basis of a pamphlet series, The Fundamentals, three million copies of which were distributed between 1910-1915 by the Los Angeles Bible Institute, founded by wealthy brothers Lyman and Milton Stewart. The pamphlets, a fundamentalist response to modernism, inspired the drive in the 1920s against liquor, dancing, and evolution teaching. The evolution/creation battle of religious ideas thus became a battle for school curriculum control.

1920s

In the last of the 19th century, the battle over evolution had been fought in higher education. Few fundamentalist children then attended college; there were alternative Bible institutes for religious youths. The anti-evolution battle shifted to the public schools in the 1920s because compulsory attendance in tax-supported high schools under secular state control became commonplace. Anti-evolution organizations sprang up because to discredit Darwinian evolution was to discredit modernism. In the early 1920s, widely printed anti-evolution speeches by leading fundamentalist William Jennings Bryan, three times candidate for the U.S. presidency, spurred introduction of 37 anti-evolution bills in 20 states, five of which passed them: Florida, Mississippi, Tennessee, Oklahoma, and Arkansas. In Kentucky, North Carolina, and Arkansas, where state university presidents took early positive stands against the bills, they were defeated. (In Arkansas, after legislative defeat, the people, by initiative and referendum, passed one in 1928).

Scopes Trial, 1925[2]

Distribution of a Bryan speech to Tennessee legislators led directly to the anti-evolution Butler Act (introduced by John Washington Butler, Primitive Baptist Church member). Most legislators who voted for it in March 1925 felt their political lives at stake but expected the bill to die or to be vetoed. Gov. Austin

Peay, under pressure from fellow Baptists, said when he signed it, "Nobody believes that it is going to be an active statute."[3]

The Chattanooga Times, April 4, 1925, reported that the American Civil Liberties Union (ACLU) would finance the defense of a case testing the Butler Act's constitutionality. In Dayton, Tennessee, the next day, friends discussed the matter in Frank Earle Robinson's drugstore. Among them was coal mine superintendent George W. Rappleyea, looked on as an outsider from New York City and one of Dayton's few evolutionists. He asked: Why not have a test case in Dayton to put the town on the map? Obvious candidate for token arrest was Dayton high school science teacher and athletic coach John Thomas Scopes, 24 and unmarried, then substituting for the regular but ill biology teacher. Scopes was sent for from a tennis game and, after the matter was put to him as a sporting proposition, he accepted. Rappleyea sent an explanatory telegram to the ACLU, received a favorable reply, and signed a warrant charging Scopes with violating the Butler Act. Appearing before justices of the peace on April 9, Scopes was bound over to the grand jury and released on $1,000 bail. The national press carried the story as reported in Chattanooga papers.

Quick to dramatize their opposition to evolution, fundamentalists easily enlisted their champion William Jennings Bryan ←——————→ ←——————→ to lead the prosecution. In New York City, three lawyers attending a conference commiserated with "That poor teacher [Scopes] who probably doesn't know what it is all about," but who was "to be sacrificed by the Fundamentalists." One of the three lawyers who offered their services to the ACLU and was accepted was the controversial defender of unpopular causes and an agnostic, Clarence Darrow.

The 11-day trial (July 10-21) was held in blistering heat. Dayton, in a carnival atmosphere, was flooded with concessionaires, evangelists, eccentrics, and fanatics among the visiting thousands. The defense had assembled expert

witnesses who intended to show that evolution was a well-established fact which did not conflict with an allegorical interpretation of the Bible. Judge John T. Raulston, however, ruled that they could not testify, although their testimony was later read into the record.

Defense attorney Darrow's master stroke came on July 20 when Bryan was called to testify as a Bible expert. The judge later ordered stricken from the record Darrow's relentless grilling of Bryan. Angered by the judge's seeming partiality, Darrow practically asked for a guilty verdict so that he could appeal to a higher court. The jury found Scopes guilty, and the judge fined him $100. Bryan died five days later (a diabetic, he had ignored his diet and overeaten). On appeal, the Tennessee Supreme Court upheld the Butler Act but dismissed Scopes' $100 fine on a technicality (the jury, not the judge, should have set the fine).

High School Biology Textbooks, 1920s-1963

Scientists may have won the Scopes trial in the forum of public opinion, but they lost educationally in high school biology textbooks. Publishers and authors ran scared. Evolution was downplayed, and the word itself was omitted in textbook indexes. For example, the textbook which Scopes had used, George William Hunter's Civic Biology, omitted all mention of evolution in the 1926 revision.

Most textbook authors were high school biology teachers, professors of education, or professors of science education. All were from New York State, major textbook publishing center; with their publishers, they capitulated to fundamentalist pressure. Those few textbooks that treated evolution extensively in the 1940s and '50s did not sell well. A recent study of biology textbooks noted that:

> Self censorship exercised by the New York-based publishing industry...shaped the content of high school biology courses for 35 years following the Scopes trial....Publishers and authors feared that a good treatment of evolution meant the loss of the southern market--a fear which seems to have been justified.[4]

Professional biologists apparently did not realize what was happening. No group deeply concerned with high school biology content and quality exerted opposing pressure on publishers. The greatest tragedy of all, the biology textbook study concluded, was "that the textbooks could have downgraded their treatment of evolution with almost nobody noticing."[3]

Circumstances changed after World War II, which had required science, technology, and trained personnel. Higher education subject matter critics such as historian Arthur E. Bestor criticized permissive progressive education as unsuitable for a nation suddenly more mature, more urban, more technological, and--with the mounting Cold War--more economically and militarily competitive with the USSR. Aided by grants, university professors developed in rapid order the new math (1955), the new physics (1957), the new chemistry (1960). The new biology (1958) was financed by the National Science Foundation and established as the Biological Sciences Curriculum Study (BSCS) at the University of Colorado (1959). By 1963 BSCS had ready for national school use three versions of biology textbooks based prominently on evolution.

It was BSCS textbooks' success, transforming high school biology and reinstating evolution, that provoked fundamentalist reaction and the creationist crusade of the 1970s and '80s. Anti-evolution opposition to BSCS textbooks erupted sporadically but never decisively in the early 1960s in Phoenix, Ariz.; was more aggressive in Texas; and in Florida, Indiana, Alabama, Minnesota, and Kentucky. Despite these short-lived storms, general acceptance of BSCS text-

books, along with such factors as court restraints on introducing any form of religion in public schools and general prosperity, probably aided repeal of Tennessee's anti-evolution law in 1967 and the U.S. Supreme Court's ruling as unconstitutional Arkansas' anti-evolution law in 1968 (Epperson case). In reaction to these pro-evolution factors, fundamentalists regrouped and their creationist allies developed new and successful tactics.[6]

Tennessee, 1967

In December 1966, University of Tennessee graduate Gary L. Scott began teaching high school science in Jacksboro, a Baptist stronghold 35 miles north of Knoxville. On April 13, 1967, he was dismissed for contravening Tennessee's anti-evolution Butler Act under which Scopes had been tried.

Defended by ACLU and NEA, the case received national publicity, spurring Tennessee legislators to rescind the anti-evolution Law which many felt had given Tennessee a bad national image. Scott was reinstated and received back pay. On May 18, 1967, Gov. Buford Ellington signed the bill repealing Tennessee's 42-year-old anti-evolution law. Only Arkansas and Mississippi still had such laws.[7]

Epperson v. Arkansas, 1968

Susan Epperson in 1964, with a University of Illinois master's degree in zoology, taught 10th grade biology at Central High School, Little Rock, Arkansas, scene of the famous 1957 desegregation confrontation. The biology textbook adopted for 1963-66 on the recommendation of Little Rock biology teachers contained an evolution unit. Aided by the NEA and ACLU, Epperson (she was Arkansas born, an Arkansas state university professor's daughter, and an Army officer's wife) challenged Arkansas' 1928 anti-evolution law in Arkansas Chancery Court. That law, passed in the fundamentalist fervor of the 1920s, was an adaptation of Tennessee's 1925 "monkey law." The Chancery Court held with Epperson that the law abridged free speech and violated the First and 14th

Amendments of the U.S. Constitution. The Arkansas State Supreme Court, however, reversed the Chancery Court's decision. On appeal, the case was argued in the U.S. Supreme Court on October 16. In delivering its verdict on November 12 declaring the anti-evolution law unconstitutional, Justice Abe Fortas said:

> There can be no doubt that Arkansas has sought to prevent its teachers from discussing the theory of evolution because it is contrary to the belief of some that the Book of Genesis must be the exclusive source of doctrine as to the origin of man.[8]

Fortas concluded that the "Arkansas law cannot be defended as an act of religious neutrality." Justice Hugo Black, concurring, said, "There has never been even a single attempt by the State to enforce...this lifeless Arkansas Act."[9]

CREATIONIST ORIGINS, ORGANIZATIONS, AND STRATEGIES SINCE THE 1960S

Widespread use of BSCS textbooks stimulated evolution teaching in U.S. high schools and thus provoked creationist crusades from the 1960s, but the origins and organizations of the creationist movement are worth recalling.

Modern Origins[10]

Conservative ministers began meeting yearly from 1916 at Moody Bible Institute, Chicago. One of them, William Bell Riley, Northern Baptist preacher, founded the World's Christian Fundamentals Association (WCFA) in 1919. WCFA by 1921 began to attack Darwinian evolution. In 1923 Riley also founded the Anti-Evolution League of America, one of several fundamentalist groups which in the 1920s urged state legislatures to pass anti-evolution laws. Active in these groups was George McCready Price, Seventh Day Adventist and self-educated geologist. His book, The New Geology, 1923, which declared the Biblical flood instead of evolution as the cause of geological formations, made him the precursor of the scientific creationist movement.

American Scientific Affiliation (ASA), 1941

In 1941, five fundamentalist scientists, meeting at Moody Bible Institute, formed ASA, a nonprofit organization incorporated under California law. Its publishe books continued the creation science view begun by George M. Price. An early (1943) member, Walter E. Lammerts, who had been influenced by Price's writings, realized in dismay that, with growth (from 5 to 860 members during 1941-61) and diverse membership, ASA had shifted to a more liberal theistic and less anti-evolutionary position. Not liking ASA's compromise, that scientific creationism should be an alternative to evolution but not necessarily required as part of the biology curriculum, Lammerts and nine other disaffected members left ASA in 1963 to form the Creation Research Society (CRS). ASA continues in Elgin, Ill., now has 3,000 members, holds annual meetings, and publishes a bi-monthly newsletter, quarterly journal, and monographs.

Creation Research Society (CRS), 1963

The flight of the ten disillusioned ASA members to found CRS was furtherd when Lammerts read in manuscript form The Genesis Flood, 1964, by Henry M. Morris (a longtime creationist who also left ASA and now directs the Institute for Creation Research) and John C. Whitcomb, Missouri Synod Lutheran theologian. This creationist book, the most footnoted and scholarly since Price's writings, was a rallying point around which CRS formed.

Lammerts, CRS's first president, was succeeded by Henry M. Morris in 1967. CRS decided to take a definite stand as professional "scientific creationists." Its voting members (693 in 1980) must hold a master's or doctoral degree in science. CRS also has about 2,000 associate members. To avoid confusion with other creationist organizations in California, CRS moved to Ann Arbor, Mich., where it publishes and sells books and other creation literature and supports creation lecturers. John N. Moore, editor of the CRS quarterly journal and a

Michigan State University professor of natural history, is CRS's intellectual theorist. In a 1970 struggle over leadership, some CRS members broke away to form the Creation Science Research Center, San Diego, Calif.

Creation Science Research Center (CSRC), 1970

Founded in 1970 by Nell J. Segraves, Jean E. Sumrall, and others in San Diego, Calif., as a tax exempt research and publishing organization, CSRC engages in legal action, offers its services to publishers to "neutralize" textbook material (that is, to eliminate evolution and to advance creationism), and employed in 1974 18 people in its headquarters, used 12 outside technical consultants, and claimed to have over 10,000 financial backers it could count on for regular small gifts.

CSRC publishes a magazine, Science and Scripture; takes tourists to Mt. Ararat, alleged site of Noah's ark; is affiliated with the Southern California branch of the Bible Science Association, which runs a radio ministry; and claims to have with its affiliate a mailing list of 200,000 people strategically located in U.S. schools, churches, and on textbook committees.

Nell J. Segraves' son, Kelly Segraves, who now heads CSRC, initiated the 1981 California legal suit for equal time. In 1972, over a book royalty dispute, some CSRC members broke away to found the Institute for Creation Research.

Institute for Creation Research (ICR), 1972

The ICR is the research division of Christian Heritage College, El Cajon (a San Diego suburb), California, an unaccredited fundamentalist college founded in 1970 by the independent Scott Memorial Baptist Church. Baptist preacher and radio evangelist Tim LaHaye was the college's first president. Linked with Moral Majority leader Jerry Falwell, LaHaye heads Californians for a Biblical Morality, whose 12,000 members oppose abortion, homosexuality, the equal rights amendment, and other fundamentalist concerns.11

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Henry M. Morris succeeded LaHaye as president of Christian Heritage College (500 undergraduate and graduate students) and is also ICR director. An active creationist for nearly 40 years, Morris has a University of Minnesota Ph.D. degree in hydraulics, 1950, and was Virginia Polytechnic Institute hydraulics engineering professor and civil engineering department chairman, 1957-60. Colleagues' criticism of his creationist views forced him out of the secular university. Four Morris family members were on the ICR staff in recent years.

ICR Associate Director Duane T. Gish is a Christian Heritage College professor and has a University of California, Berkeley, Ph.D. degree in biochemistry, 1953. He held a Cornell University Medical School postdoctoral fellowship, was a longtime researcher at Upjohn and Co., a pharmaceutical firm; and in 1971 he began full-time work at ICR as a convinced creationist. Mrs. Gish was Christian Heritage College librarian.

Lane Lester, devout Southern Baptist who joined ICR in 1974 after hearing Gish speak, has a Purdue University Ph.D. degree in genetics; taught in high school; was University of Tennessee assistant professor; and worked incognito at BSCS for a year to learn how to develop educational materials.

ICR writer and lecturer Richard Bliss is a creationist and longtime high school teacher.

ICR, which aspires to be the most scholarly of creationist organizations, debunks CSRC as "a promotional and sales organization," and puts down CSRC Director Kelly Segraves as having a diploma-mill doctorate from Los Angeles Christian University, a pseudo-college without a campus or telephone listing.[12]

Other Creationist Organization

California and Florida are major creationist centers, and other organizations include:

(1) The Genesis School of Graduate Studies, Gainesville, Florida, advertised

as offering the Ph.D. degree in the "first known postgraduate level college stressing science creationism."

(2) The Bible Science Association (BSA) in Minneapolis.

(3) The Geo-Science Research Institute, operated by Seventh Day Adventists in Loma Linda, Calif.

(4) The Bible Science Association (BSA) of Caldwell, Idaho, formed by Lutheran minister Walter Lang to "set forth the scientific value of the creationists' position."

BSA-related organization include:

(5) The Scientific Creationism Association of Southern New Jersey.

(6) The Educational Research Analysts in Texas.

(7) The Creation Research Science Education Foundation, Inc., in Ohio, 1973.

Two British creationist organizations include:

(8) The 800-member Evolution Protest Movement, 1932.

(9) The Newton Scientific Organization, 1973.

Creationists' Characteristics

Most scientists who are creation activists hold advanced degrees in the physical sciences and engineering. Many, such as Gish and Lester, whose religious beliefs clashed with their scientific training, found that creationism helped resolve their doubts. Creationists feel that most biologists are too brainwashed with evolution theory to think flexibly about creationist evidence. They also believe that technical people such as themselves, who work in highly structured and ordered contexts, are inclined to think in terms of order and design.

Creationists count as sympathizer the late NASA rocket engineer Wernher von Braun, who wrote:

> One cannot be exposed to the law and order of the universe without concluding that there must be design and purpose behind it all....

> I endorse the presentation of alternative theories for the origin of the universe, life, and man in the science classroom.13

Von Braun later qualified his position, still believing in "divine intent" behind nature, but not believing that all living species were created in their final form some 5,000 years ago (as creationists believe).

Astronauts who endorsed the creationist view include James Irwin, who after his experience on the moon ("I feel the power of God as I'd never felt it before") founded an evangelical foundation called High Flight. Astronauts Frank Borman and Edgar D. Mitchell have reportedly said that they feel the Genesis account of creation to be an appropriate explanation.

Other creationists are Mr. and Mrs. Mel Gabler of Longview, Texas, long-time conservative textbook watchers, who after 1972 turned their attention to science textbooks.

EVENTS SINCE THE 1960S

California, 1962-72

In successfully developing equal time strategy, Jean E. Sumrall and Nell J. Segraves, two neighboring conservative housewives and mothers in Costa Mesa, Orange County, helped make Southern California a creationist stronghold. They were active in the Young Republicans, had opposed alleged obscenity and anti-Christian statements in the nearby Orange Coast (Junior) College student newspaper, and were concerned about their own children's exposure to public school "atheistic" teaching. In 1962 they asked Orange County school board officials: why, if Darwinian evolution was taught as an atheistic sectarian philosophy, religion could not also be taught? They were told that California law prohibited the teaching of any sectarian doctrine.

Wanting to prepare a case against evolution teaching to lay before the California State Board of Education, Mrs. Sumrall turned for advice to creationist Walter E. Lammerts, her Bible teacher at a Missouri Synod Lutheran Church (he was then breaking away from ASA to form CRS). For further advice and strategy, the two women sponsored a creation science seminar in 1963 from which later developed the Southern California branch of the Bible Science Association.

In May 1963 the two women asked the California State Board of Education that evolution be taught as theory, not fact, a point of view the Board accepted. For creationists, this was an early success. By 1966, when the two women appeared again before the Board, BSCS textbooks were well launched, evolution was being taught to all states, and opposition to BSCS in Texas had failed. Knowing that they could not eliminate evolution teaching, the two women asked in 1966 for equal time for creation science. The Board postponed a decision, saying that state policy on science teaching would not be ready until 1969 and that new textbooks would not be adopted until 1972.

California's political climate favored creationists. A conservative backlash against the University of California, Berkeley, Free Speech Movement helped elect Ronald Reagan as Republican Governor, 1966-70 and 1970-74. Advised by conservative State Superintendent of Education Max Rafferty (who sided publicly with creationists), Reagan filled Board vacancies with conservatively religious appointees. Two were avowed fundamentalists: Dr. John Ford, a Seventh Day Adventist and San Diego physician, and Dr. Thomas Harward, Rafferty's physician.

Scientists serving on a State Advisory Committee on Science Education pointedly omitted creationism in a draft Science Framework for California Public Schools. At an October 1969 Board meeting to consider the draft, Ford and Harward objected to it and gained a one-month delay. In the interval, creationist Vernon

L. Grose, an ASA member and a Tustin Institute of Technology engineer, read a Los Angeles Times editorial about the Board's dispute. On his own, he mailed to the Board two paragraphs modifying the Science Framework to legitimize giving equal time to creation science and evolution. The Board invited Grose to its November 1969 meeting (also attended by Segraves, Sumrall, Lammerts, and other creationists) and accepted his crucial two paragraphs. Over scientists' objections, the revised Science Framework was sent to all textbook publishers, whose books then had to give equal treatment to evolution and creation. Creationists, jubilant, had won an all-important victory. To win in California gave hope of winning equal time everywhere. California accounted for ten percent of all textbooks used in the nation's public schools. Scientists, who had tended to ignore creationists, were appalled that a literal 24-hour day, six-day creation and flood explanation for fossil remains could gain equal-time credence with evolution in late 20th century America.

In opposition, the National Association of Biology Teachers (NABT) started a legal defense fund for teachers running afoul of Science Framework. Resolutions protesting the California Board's equal time position were passed by the Commission on Science Education of the American Association for the Advancement of Science the American Chemical Society, the National Academy of Sciences, and other science organizations. Creationists' position was strengthened by Grose's appointment to the California state textbook selection committee.

A writer in Science reported the significance of creationists' first equal-time victory in California, the nation's most populous state:

> What is 'good' for California is likely to become 'good' for the rest of the nation....Unless publishers are prepared to produce special California editions--and they probably are not--the standard set for California will, willy-nilly, become the standards for many other states.[14]

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The writer pointed out that creationists' victory in California made further politicizing of the classroom easier. If California can dictate the content of science for religious reasons, it can also dictate the content for political purposes. He reminded his readers of USSR genetics under "Lysenko when Russian biologists defended an erroneous theory on the grounds that it must be true because it was Marxist."[15] He lamented that the Board's unwise action also reflected scientists' failure to acquaint the public with the rationale of science. "Creationism," he explained, "responds to different rules....It is not subject to empirical tests, nor does it allow of improvement. Certainly it is not a logical complement of evolution theory."[16]

Events, however, made the creationist victory shortlived as evolutionist support on the Board revived with Democratic Governor Jerry Brown's election in 1974. To prevent equal-time science textbooks from being shipped to the schools, public interest groups asked two legislators to seek Attorney General George Deukmejian's opinion. He concluded that "There is no affirmative duty to present the creation theory since that theory is essentially a religious one."[17] This opinion was reflected in a Science Framework addendum approved by the Board March 14, 1974. Creationists' reaction was to introduce a January 1978 resolution to reinstate equal time. The resolution's demise in legislative committee helped provoke the Segraves v. California 1981 case described in chronological sequence.

Tennessee, 1973

Russell C. Artist, biology professor at the Church of Christ-affiliated David Lipscomb College, Nashville, was a member of the Creation Research Society (CRS) and contributor to a creationist textbook, Biology: A Search for Order in Complexity. In 1973, he tried unsuccessfully to get the Tennessee Textbook Commission to adopt his textbook. He then persuaded State Senator Milton Hamilton,

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a fellow Church of Christ member, to introduce an equal time bill requiring creation theory to be taught along with evolution. On April 18 the Tennessee Senate passed the bill 28-1 without debate because of television coverage. Explained Senator Hamilton: "The reason there wasn't any debate is that the national TV came down here with the idea that they would make us look like a bunch of nitpickers. You know, like barefoot Tennesseans."[18]

The next week the bill passed in the Tennessee House 54-15, managed by Representative Tommy Burnett, an occasional Church of Christ lay preacher. The House debate clearly showed the bill's sectarian nature and the desire of its advocates to advance religion. The National Association of Biology Teachers (NABT), which had earlier set up a defense fund, fought Tennessee's "Genesis Law" (as the statute came to be called), as it had months earlier opposed equal time in California, 1972. In 1974 the "Genesis Law" was ruled unconstitutional by a state court because it contravened separation of church and state. The CRS appealed to the U.S. Court of Appeals for the Sixth Circuit, which on April 10, 1975, ruled 2-1 in favor of the NABT.[19]

West Virginia Textbook Case, 1974-75[20]

Anti-evolution sentiments also were present in the West Virginia textbook controversy, 1974-75.

Public grumbling over earlier school consolidation, schedule changes, and sex education issues mounted in a heated May 14, 1974, school board election. The biggest vote getter won by criticizing the school board and school administration for being inaccessible to parents and teachers and by echoing local resentment at the closing of neighborhood elementary schools. Charleston newspapers criticized schools for neglecting fundamentals for frills and for substituting secular humanism for traditional values and morals.

Kanawha County had changed. Affluent, better educated outsiders had moved into positions of power in Charleston's civic and industrial affairs

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(petrochemical industries and food processing plants), breeding resentment among rural and small town miners and farmers scattered on hillsides, up hollows, and along creeks. Many were religious fundamentalists, wary of change, resentful of outsiders, and bewildered by the civil rights movement, black ghetto riots, beatniks, women's movement, Vietnam War protests, drugs, runaway children, crime, gay rights, Watergate, stagflation, energy crunch, and gas lines. Yet textbooks, normally a benign issue, sparked local fundamentalist fire. In the wake of the civil rights movement, West Virginia legislators, as had other state legislatures, required textbooks which recognized ethnic differences in multicultural America.

In June 1974, school board member Alice Moore, Church of Christ preacher's wife and a mother elected on an anti-sex education issue, objected to the supplementary textbooks. Excerpts labeled dirty, anti-American, and anti-religious were distributed by fundamentalist groups. Petitions were circulated asking the board not to adopt the books. Forces for and against the books formed sides for a confrontation. On June 27, the school board removed some of the more objectionable books but voted 3-2 to adopt the rest.

After a tense summer, schools opened September 3 while pickets carried such signs as "Jesus Yes, Textbooks Nyet" and "I have a Bible. I don't need Dirty books." Then, on September 4, 3,500 coal miners walked off their jobs. The lightning spread of wildcat strikes had more to do with a pending United Mine Workers contract than with textbooks. Wanting coal stocks depleted to help get a better contract, some leaders deliberately tied their unauthorized strikes to the anti-textbook movement.

School board compromise did not work. Protesting citizens wanted all allegedly dirty textbooks out. Schools were firebombed. School buses (empty)

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were fired on. People were beaten. A December 12 school board meeting ended in a fight. When the local sheriff, a Democrat, asked for state police, the Republican governor, allegedly to cause political embarrassment, refused, until worsening events forced him to comply.

The Kanawha County book battle made national news. Outside John Birch Society and Ku Klux Klan (KKK) leaders came in to hold rallies and to recruit members. Anti-black prejudice erupted. One KKK outsider warned an anti-textbook crowd about intermarriage and condemned "niggers that rape our daughters, flood our jails and burn our cities." Antisemitic remarks were made.

U.S. Commissioner of Education T.H. Bell told a national conference of textbook publishers not to print books that insulted parents' values. The National Education Association (NEA) evoked resentment when it sent in an investigating team at the urging of the local teachers' association.

Federal judges' harsh sentencing of lawbreakers turned the tide. Schools returned to some semblance of normalcy. But bitterness remained. Mrs. Moore charged the NEA with conspiring to take control of schools away from parents. "Human relations courses," she said, "are secular humanistic approaches to education....It's time we got off this ethnic kick."

A liberal minister observed, "This county is experiencing a religious crusade as fierce as any out of the Middle Ages....Our children are being sacrificed because of the fanatical zeal of our fundamentalist brothers who claim to be hearing the... voice of God." The anti-textbook people, he wrote, are confused and angry about everything from marijuana to Watergate. Feeling helpless and left out, they are looking for a scapegoat, eager to exorcise all that is evil and foul, cleanse or burn all that is strange and foreign. "In this religious war," he wrote, "spiced with overtones of race and class, the books are an accessible target."[21]

The national radical right exerting influence in Kanawha County included the Mel Gablers, conservative Texas textbook watchers; the Heritage Foundation, Washington, D.C., conservative think tank; and the Movement to Restore Democracy, a John Birch Society front group.

Little noted amid "dirty" textbook clamor was the fact that in April 1973 creationists got two creation textbooks adopted in Kanawha County. The anti-sex education campaigns of the early 1970s, the Kanawha County textbook riots, and the MACOS battle to be described were stages of a conservative, reactionary mood in whose wake creationists grew bolder and more determined.[22]

MACOS, 1975[23]

In March and April 1975, while the Kanawha textbook battle made national news, another controversy with strong anti-evolution concerns erupted in the U.S. Congress over "Man: A Course of Study" (MACOS), $7 million National Science Foundation (NSF)-financed fifth and sixth grade social studies course.

From 1963, under the auspices of Education Development Center (Cambridge, Mass.), Harvard psychologist Jerome Bruner (leading advocate of inquiry as a teaching method) and others developed MACOS. They believed that children could learn better about human behavior if teaching materials were adapted to their understanding from college-level anthropology. The course contained some 31 books, 21 films, 9 teachers' manuals, records, and pamphlets. In the first part, teachers discussed animal instincts with children to stimulate their thinking about human instincts. The second part contrasted modern culture with the harsh life of a small band of primitive Netsilik Eskimos in the Canadian north.

Opponents of MACOS in Lake City, Fla., 1970; Phoenix, Ariz., 1971; and in at least eight other states protested its evolution content. Several creationists in the 1972 California evolution controversy were vocally anti-MACOS

(although they did not fight its adoption). MACOS was also on the disapproval list of the Mel Gablers, [redacted] who were vocally anti-evolution.

In 1973 U.S. Republican Representatives Marjorie Holt (Maryland) and John Ashford (Ohio) objected to MACOS. Late in 1974 a Heritage Foundation report criticized MACOS for denying the existence of God and replacing traditional religious values with Darwinian evolution. The Council for Basic Education also criticized NSF for supporting a course of "cultural relativism and environmental determinism."[24] Leadership Action, Inc., mailed "lurid" excerpts from MACOS to thousands of state legislators and U.S. Congressmen.

When the NSF budget came up for House authorization in March 1975, Republican Representative John B. Conlon (Arizona) and others denounced MACOS' content as injuring children's minds and morals and criticized NSF for using taxpayers' money to foist an undesirable course on local schools. He charged that the course condoned barbaric practices of Netsilik Eskimos: cannibalism, murder of the weak and helpless (female infanticide, senilicide), wife swapping, incest, revenge, and robbery. He also charged that 50 commercial publishers had declined to publish the course, that NSF had subsidized publication, and that NSF had paid for high pressure promotion which led 1,700 U.S. elementary schools to use MACOS.

Other criticism, read into the Congressional Record,[25] included "the purpose of MACOS [is] to get children to question this society's most cherished values." "The alarming result," a Heritage Foundation report stated, "is that children come to believe that there are no moral absolutes." The report continued:

> MACOS teaches children that nothing is sacred. Not the religious beliefs taught them by their parents. Not Western civilization. Not their country. Nothing, except perhaps the 'anything-goes' beliefs

of the course's leftist developers, Jerome S. Bruner and B. F. Skinner, whose book Beyond Freedom and Dignity showed in stark relief his affinity for changing human values through psychological conditioning.[26]

MACOS, said another critic, not only forced children's preoccupation with infanticide, senilicide, and the gory details of animal slaughter, but: "It also aims at making the children accepting of these practices. Further, the children are forced to identify with the customs through role playing, even of Eskimo myths."[27]

"The purpose of all this frantic organizing at taxpayers' expense," Conlon and others further charged, was to aid MACOS developers in lobbying for further government grants to implement a tenth grade sequel called "Exploring Human Nature," which they expect to foist onto a "minimum of 1,900 additional classrooms in 500 school districts in 50 states...by next year."[28]

Some Congressmen enjoyed seeing NSF squirm. They were irritated by NSF and other agency bureaucrats they felt were too independent. They were also put off by scientists who showed disdain for Congressional politics. Presidential staff secrecy in the Watergate affair was also a big factor. The MACOS fight during NSF budget hearings reflected post-Watergate heightened morality more than it did concern for Eskimo morality.

Anti-MACOS forces succeeded in holding up NSF funds and thus halted for a time NSF-financed national education programs. Several investigations of NSF procedures effectively killed MACOS and frightened curriculum reformers. The conservative right had won.

MACOS defenders, hardly heard amid critics' din, said that in a national survey of teachers MACOS "was rated second-highest over all and highest of all federally funded social studies curriculum projects"; that MACOS had been cited by

American Educational Research Association and American Educational Publishers Institute as "one of the most important efforts of our time to relate research findings...in educational psychology to the development of new and better instructional materials."[29]

In restrospect, MACOS' content may indeed have been too strong, too stark for 10-year-olds. Congress has a right to oversee NSF funding. Parent-citizens have a right to question what their children learned. Yet the MACOS episode, like the Kanawha County textbook affair, illustrated the nation's conservative right turn in which creationism was to become a powerful factor.

Segraves v. California, 1981

Having won their first equal-time victory in California in 1972 under Governor Reagan, creationists were set back when, under Governor Jerry Brown, the California Board of Education revised the Science Framework to exclude mention of Biblical creation. In response, in January 1978, creationists had California Assemblyman Dannemeyer introduce a resolution requiring a balanced treatment of evolution and special creation, but the resolution died in committee. One anti-creationist account points out that, to cash in ideologically and financially on the 1972 equal-time victory, CSRC began publishing a 17-volume "Science and Creation" textbook series with teaching guides. The Board's prohibition of creation teaching in the 1978 Science Framework thus threatened CSRC's large investment in textbooks.[30]

These setbacks probably evoked Segraves v. California, 1981, a lawsuit brought by CSRC Director Kelly Segraves (Nell Segraves' son), who claimed violation of the religious freedom of his three children because they were taught evolution dogmatically without a competing divine-origin view of the universe. The media-heralded "Scopes II trial of the century," however, never grappled with the larger issues of science and religion, aims of education, or states' rights

in curriculum offerings. Early in the five-day nonjury trial, Segraves and his lawyer narrowed their complaint to one issue: that the Science Framework dogmatically presented evolution as the only theory of life and earth origins. They said they would be satisfied to have references to evolution theory qualified with such phrases as "most scientists believe" or "scientists hypothesize." Sacramento Superior Court Judge Irving H. Perluss on March 6 rejected creationists' original equal time request but also pleased them by ordering statewide distribution of a 1973 Board statement that evolution should be treated as theory, not fact. Segraves claimed victory, saying that the ruling "will stop the dogmatic teaching of evolution and protect the right of the Christian child."[31]

Segraves explained that he and his lawyer chose to take on the narrower issue of changing a few words in Science Framework "because we thought we had a better chance to win this one first." This victory, he said, is an "opening wedge" that eventually will get creationism into science classes and evolution out.[32]

CSRC "gained...enormous publicity...[and] the stamp of legitimacy," wrote Harvey Siegel, a pro-evolution witness at the trial (but who was not called on to testify). "This implied legitimacy of creationism is undeserved because creationism is not scientific." He went on:

> The effect of the decision is to suggest that creationism does deserve to be recognized as scientifically legitimate. The court thus passively ruled in favor of CSRC concerning the scientific status of creationism, while refusing to allow the issue to be aired and debated openly. This is perhaps the most damaging result of the trial.[33]

"The larger issues remain...unresolved," wrote Siegel. "Creationism will continue to grow and be incorporated into the science curricula of communities across the country."[34]

Others speculated that Segraves backed away from his original complaint because--with or without the California court case--creationists were gaining impressive new ground in the growing number of science and biology textbooks that deleted or hardly mention Darwin or evolution. One textbook writer said: "Creationism has no place in biology books, but, after all, we're in the business of selling textbooks. If our books don't sell in California and Texas, it's certain that we're not going to make a profit."[35] A Holt, Rinehart and Winston editor commented: "If you're not listed in a state, you can't sell books in [that] state. If you take an ideological viewpoint, you may find yourself not listed."[36] A biology teacher complained: "I think the Creationists have won.... They've not passed any legislation, but they've got the textbooks changed."[37]

"We basically got what we wanted," said creationist trial lawyer Richard K. Turner, former legal aide to the then Governor Reagan. "We can fight other battles tomorrow."[38] Nell Segraves amplified: "We have a lot to undo. Creation/evolution is only the beginning." University of California (Berkeley) biophysicist Thomas H. Jukes, who had assembled over 20 pro-evolution science witnesses (only a few of whom the court let testify), complained: "Next time the state tries to rally the ranks it may not be so easy."[39]

Arkansas, 1981

In March the Arkansas Senate passed 22-2 and the House passed 69-18 a bill requiring equal time for teaching "evolution theory" and "creation science." Democratic Representative Mike Wilson, who tried to introduce an amendment to kill the bill, was shouted down. The bill became law on March 23 when it was signed by Republican Governor Frank White, member of a small evangelical Bible sect. Arkansas thus became the first state to pass an equal-time law.

"This is a terrible bill, but it's worded so cleverly that none of us can vote against it if we want to come back here," said Representative Bill Clark.[40]

Many legislators, running scared, disliked the bill but voted for it to save their political lives, believing that ultimately the courts will declare the law unconstitutional.

This law was modeled after one allegedly written by ICR lawyer Wendell R. Bird and promoted nationally by South Carolina creationist Paul Ellwanger, who heads two organizations: Citizens for Fairness in Education and Citizens Against Federal Establishment of Evolutionary Dogma. To avoid constitutional challenge, this model contains no references to God or religion. Ellwanger claims that most of the creation science bills being considered in 21 state legislatures "are modeled on ours....Our bill is constitutionally very strong."[41]

Newspaper editorials were mostly critical. "This is disguised religion," wrote the Baltimore Sun, quoting the equal-time language of the bill as "not the language of a science" but "the language of a cult," and predicting that "When this law is tested in court, it will fail, as well as all others like it."[42]

"The issue here," wrote the Miami, Fla., Herald, "is academic freedom." "School policies," it continued, are

> best left to the expertise of teachers and professors rather than to politicians and popular sentiment....The consequences of the intrusion of politics into science are nowhere more evident than in the Soviet Union [where students were] taught the ridiculous theories of Lysenko [that environment can produce heritable changes in plant and animal characteristics].

The Herald continued: Requiring the teaching of creationism "seems to be motivated by the demonstrably unfounded fear that the teachings of science will destroy young people's religious beliefs."[43]

The Portland Oregonian called the Arkansas bill, "Bad science, bad for religion and a disgrace in a nation that prides itself on its scientific understanding and religious tolerance."[44]

The Arkansas Democrat thought that:

> ALCU has a chance of winning its suit on the argument that the legislature has created an establishment of religion under guise of calling for the teaching of a scientific theory competitive with the theory of evolution.[45]

In May the ACLU and 22 other plaintiffs filed suit challenging the Arkansas bill as unconstitutional in violating separation of church and state, academic freedom, and due process. The two best prepared creationist lawyers in the U.S. who will defend the Arkansas equal-time bill are ICR lawyer Wendell R. Bird and Virginia attorney John Whitehead, author of books on First Amendment issues. The ACLU lawsuit was scheduled for trial on October 26, 1981.[46]

Arkansas ACLU executive director Sandra Kurjiaka thinks "the Right chose Arkansas because ...most members of the house and senate are from rural districts" and "frankly aren't very concerned about the constitutionality of laws that they pass." Hasty hearings on the bill "lasted ten minutes or fifteen minutes." Introduction of the bill "was very carefully orchestrated for the last days of the session, so there would not be any opposition to it." She continued: "Now most members are very embarrassed that they voted yes for it." The 19 who voted against it and feared for their political future feel better now that opposition to the bill is mounting. "Newspapers have been filled with letters of protest. Church leaders are furious....The business community feels embarrassed. They feel the law will hurt them economically." She concluded: "I'm not sure there's anybody beyond 50 or so members of the Moral Majority in the entire state who want this thing."[47]

Louisiana, 1981

Louisiana followed Arkansas as the second state to pass an equal-time evolution/"creation science" law. When he signed the "Balanced Treatment" bill (as it was called) on July 12, Governor David C. Treen said that he received "hundreds

of communications on the subject," was "not free of doubt," and added that "academic freedom cannot be harmed by inclusion, only by exclusion of differing points of view."[48]

This bill, introduced by State Senator William Keith (he had introduced a similar bill which was defeated in 1980), was, like the Arkansas bill, based on the Wendell R. Bird-Paul Ellwanger model bill. The Louisiana bill, passed in the House 71-19 on July 16 and in the Senate 26-12 on July 8, was opposed more vigorously than was the one in Arkansas. Eight lobbying groups opposed it, including the Louisiana Federation of Teachers, School Board Association, and higher education science teachers. It was challenged in court by the Louisiana ACLU.[49]

Louisiana science education official Don McGehee estimated state costs at $1.8 million to $7 million to implement the new law in 1982, including library books, teacher training, teachers' creation science curriculum guides, and student textbooks published by Creation Life Press, San Diego. He wondered how minimum standards for teachers required by a 1979 Competency-Based Education Program could be applied to creation science (evolution is taught in Louisiana from the 5th grade and in several disciplines). "Imagine what it will be like in the classroom," he said, explaining:

> I'm teaching, and one minute I'm talking about dinosaurs and fossils and so forth. Then the next minute I have to put on another hat and say, 'You know that stuff about dinosaurs I was just telling you? Well...ah...that's not really true.'[50]

Having succeeded in Arkansas and Louisiana, creationist Ellwanger said that many creationists who try but fail to pass their own bills come to him, that he is in touch with legislators in all 50 states, and that his group has drafted a bill to be introduced in the U.S. Congress "any day now" to promote research

funds for creation science, outlaw evolution lectures in national parks, and prohibit evolution displays in federally supported museums.[51]

RESOLUTIONS AND POLICY STATEMENTS

California 1972 events, in which Science Framework approved equal time for evolution/creation teaching, alarmed science and education organizations. Galvanized into action, many of them passed resolutions and made policy statements, selections of which follow.

Science and Education Associations

The National Association of Biology Teachers (NABT) position paper (October 30, 1980) concluded:

> NABT has an obligation to maintain the integrity of biology as a scientific discipline. To this end it must act to resist efforts to include in science classrooms materials derived outside the scientific process.[52]

The Commission on Science Education of the American Association for the Advancement of Science (AAAS) recorded (October 13, 1972) that AAAS is "vigorously opposed to attempts...to require that religious accounts of creation be taught in science classes," and concluded:

> Statements about creation that are part of the many religions have no place in...science and should not be regarded as reasonable alternatives to scientific explanations for the origin and evolution of life.[53]

The National Academy of Science (NAS, October 17, 1972) statement, after deploring California's 1972 equal time rule, concluded that NAS members "urge that textbooks of the sciences, utilized in the public schools of the nation, be limited to the exposition of scientific matter."[54]

Also deploring California's 1972 equal time rule, the Academic Senate of the University of California stated (October 27, 1972) that, in terms of the First Amendment, "We believe that the teaching of special creation should be

avoided entirely in California public schools," and urged that "the State Board of Education reject inclusion of special creation in State-approved science textbooks."[55]

The New York Biology Teachers Association published (March 7, 1980): "Despite recent disclaimers by its proponents..., the creation 'theory' is a religious concept," and concluded, "A serious defect of 'creation theory' is its lack of verifiability."[56]

A National Education Association resolution (July 1981) "opposed the teaching of creationism, the Bible version of how life began, as a mandatory part of the school curriculum, as it violates teacher and student rights."[57]

The Iowa Council of Science Supervisors' statement concluded:

> Until 'scientific creation' receives substantial support from National Science Foundation and American Association for the Advancement of Science,...the science teachers of Iowa reject further consideration of scientific creationism as an alternative approach to established science teaching practices.[58]

Kansas Association of Biology Teachers indicated (September 20, 1980) "that creationism is a religious doctrine and therefore shouldn't be taught in a science classroom."[59]

A New York Academy of Science statement held that (May 22, 1980): "Mandating the study of Scientific Creationism in the public schools of New York State is an attempt to introduce, by fiat, religious dogma." The statement continued: "Scientific Creationism is a religious concept masquerading as a scientific one." It concluded: "'Scientific Creationism' is lacking in scientific substance; we reject it for inclusion in science curricula."[60]

After a review of court cases on the evolution/creation controversy, staff attorney Victoria B. Eiger of the American Jewish Congress Commission on Law and

Social Action reported: "Scientific creationism, in all of its varied forms, is, at heart, a religious doctrine and all attempts to legitimatize it as a competing scientific theory must be rejected as sham."[61]

The Virginia Academy of Science position (May 13, 1981) stated in part: "The central organizing principle of biology is the theory of evolution....It is the duty of the scientific community to resist unwarranted political and religious intrusion into the domain of science."[62]

State Departments of Education

Being subject to more local creationist pressure, State Departments of Education were more circumspect and often more accepting of equal time.

Pennsylvania State Department of Education does not have an official position but its senior program advisor recommended that "only scientific theories of the origins and development of life forms should be taught in the science classrooms," that "'scientific creationism' is not accepted as science by the majority of scientists," and that "the Theory of Evolution should not be taught as fact, but as a scientific theory."[63]

Iowa's science consultant prepared policy papers recording pro-evolution views of selected national science organizations as well as prominent creationist viewpoints. Emphasizing that evolution is not dogma and that evolution theory should be taught as well-supported scientific theory but not as fact, the statement concluded:

> Public schools cannot be surrogate family, church, and all other necessary social institutions for students, and for them to attempt to do so would be a great disservice to citizens and appropriate institutions.[64]

Oregon makes available its State Attorney General's lengthy legal analysis of the controversy and his final opinion (December 16, 1980): ——————→

When evolution is taught, equal time creation teaching is not required.[65]

Minnesota's position paper states:

> The forced inclusion of religious beliefs paralleling the theory of evolution in the curriculum is not legal because that teaching is a violation of the concept of the separation of church and state.[66]

New Mexico distributed the New Mexico Science Teachers Association position paper (October 22, 1980), which asserts: "Theology is to be kept out of science curricula." The state also inserts the following in all adopted biology textbooks: "Statements of origin should be presented as theory and not fact. Further, local school districts should consider the merits of presenting multiple theories of origin, based upon student needs."[67]

Kentucky school law (June 19, 1976) allows "any teacher" the "right to include Bible theory of creation" when teaching evolution but may not "stress any particular denomination."[68]

Texas policy is that textbooks treat evolution "as theory rather than verified" and "as only one of several explanations of the origins of mankind."[69]

Virginia recognizes that "the theory of evolution...is accepted by the National Academy of Sciences and other scientific organizations." However,

> Teachers shall recognize the fact that other theories of origin of life exist. While science teachers are not trained or expected to provide instruction in these other theories, they are obligated to encourage students to seek information not provided in the classroom from parents and other sources in the community.[70]

ARGUMENTS FOR AND AGAINST

Evolution

Besides the pro-evolution resolutions by national science and education organizations, anthropologist Ashley Montagu is among the many individuals who speak for evolution. He declared, "Evolution is an irrefutable fact. There are theories concerning the exact mechanism of evolution, but concerning evolution itself there can be no doubt." He concluded: "Evolution is...one of the best authenticated facts within the whole realm of science."[71]

To counter doubts spread by creationists, evolution as a topic has been urged at national science meetings. Smithsonian Institution scientist Porter M. Kier at the Toronto meeting, January 1980, of the American Association for the Advancement of Science (AAAS) said: The "overwhelming and incontrovertible" evidence for evolution has been accumulated by scientists for several hundred years. Age-dating methods prove that rocks at least 3.5 billion years old contain evidence of life. He added:

> We know beyond doubt that life has changed dramatically, from simple unicellular organisms into animals as complex as man. Our knowledge of...the process of evolution is extraordinarily detailed...based on unassailable evidence [of] the fossil remains of thousands and thousands of species of plants and animals which no longer exist....In the museums of the world, I estimate that there are over 100 million fossils that have been identified and age-dated. These fossils have been examined by many thousands of paleontologists.[72]

Despite this evidence, Kier said, many educated people still question evolution, perhaps because the word "theory" attached to it gives the impression that scientists themselves do not accept evolution absolutely. To the layman, "theory" means a

guess or hypothesis, but to scientists it means a structure that welds facts and logic into an understandable whole.

The scientist who initiated the session said that when he realized how creationists were cleverly and deliberately confusing teachers and school boards about science and religion, he came out of his ivory tower to organize this particular AAAS evolution discussion.

Biological Sciences Curriculum Study Director William B. Mayer said at the same meeting that scientists do not pay enough attention to creationists' anti-evolution tactics but simply dismiss them as irrelevant and their ideas as non-sense. He added, "There is not one scientist who is funded to devote full time to espousing evolutionary theory."[73]

Anti-evolution statements to which scientists and science organizations have only belatedly reacted include this from Institute for Creation Research (ICR) Director Henry M. Morris:

> The evolutionary belief that the world has slowly developed over vast aeons of time and that man himself is merely an evolved animal, all without the need of a creator, is the root cause of man's present distress and perplexity.[74]

Elsewhere Morris wrote:

> This God-rejecting, man-exalting philosophy of evolution spills its evil progeny—materialism, modernism, humanism, socialism, fascism, communism, and ultimately satanism—in terrifying profusion all over the world.[75]

ICR's Associate Director Duane T. Gish echoed this criticism:

> Most of today's deadliest philosophies, such as anarchism, amoralism, racism, totalitarianism, and imperialism, have been based on the Darwinian concepts of struggle and survival.[76]

Added creationist Braswell Dean, Georgia Court of Appeals judge:

> This monkey mythology of Darwin is the cause of permissiveness, promiscuity, pills, prophylactics, perversions, pregnancies, abortions, pornotherapy, pollution, poisoning, and proliferations of crimes of all types.77

Creationist lawyer Richard K. Turner said: "Darwinism, according to London University Professor of Science Karl Popper, is not a scientific theory but metaphysical." Popper, widely known for his "falsification" theory of science, said that theories cannot be "proven true" but only refuted; when refuted, they must be abandoned. Creationists eagerly quote Popper as saying that because evolution theory cannot make predictions and cannot therefore be proven false, it is therefore not a scientific theory. In rebuttal, some scientists say that Popper's theories are passé. Others quickly point out that, "In 1980, Popper disassociated himself from this deduction which claims evolutionary studies to be 'metaphysical.'" "In short," writes biology Professor W.D. Russell-Hunter, "Popper has now defended the scientific character of the theory of evolution and of paleontology."78

Creationist lawyer Turner also derided the bickering, squabbling, and lack of consensus about the correct form of evolution theory. While Darwin and his successors saw evolution as a process of gradual change, some recent evolutionists suggest sudden leaps and discontinuities. Turner said that differences among these "punctuated equilibrists," "cladists," and "uniformitarians"--all of them evolutionists--are as bad as differences between evolutionists and creationists. He said:

> If you can prove that the theory is simply a poor theory, and the scientists still believe in it and fight over it, then you've started to prove that its akin to believing that there's a

> God....These scientists get up on the stand, and act as if their very lives were being attacked. They not only close ranks, but they almost deny anybody the right to know of the internal fights that go on within the evolutionary crowd. They're pompous and arrogant. 79

This case against evolution, wrote a fundamentalist Baptist preacher, is really a case against modern dislocations caused by science and technology. "The results of science and technology have been good and bad"; he wrote:

> Pollution of various kinds, the prostitution of science and technology and the increasing intrusion of science and government into the arena of human values pose a threat. We are coming into an era of experimentation on human beings that asks only 'Is it possible?' and 'Is it feasible?' and leaves out the question 'Is it right?' 80

"To some," he continued "science is a sacred cow. But it is not God.... It is long overdue for self criticism and correction. If the scientific community does not do it itself, then others are willing to step in and take on the role."81

"Reasons for the success of creationism are quite clear," explained Brown University Professor Kenneth Miller; "These are a failure to teach science to our young people correctly, and an increasingly conservative mood which makes the injection of religion in the guise of science personally acceptable to most people."82

Creationism

"Repossess the Land" was the theme of the 15th Anniversary Creation Convention held August 1979 in Anaheim, Calif.83 The over 300 creationists from more than 50 U.S. creation societies heard their viewpoint presented by Concordia Teachers College (River Forest, Ill.) President Paul Zimmerman and Concordia Teachers

College (Ann Arbor, Mich.) Biology Professor Wilbert Rusch. National Association of Biology Teachers (NABT) Executive Director Wayne A. Moyer presented the evolution viewpoint.

Creationists, said Zimmerman and Rusch, accept on faith that a deity exists external to the universe and that He created the universe, earth, and all living things by a suspension of natural laws. From this it follows that man has a divine origin and lives in a special relationship to the Creator. Moyer, disagreeing, cited two assumptions on which evolution rests: the natural laws we observe today have operated continuously in the universe, and living things operate in strict accordance with these natural laws.

The opponents then delineated five points of disagreement.

1. On the origin of the universe: Many evolutionists attribute the origin of the universe to the "big bang" theory--a great explosion that formed the stars and planets. Creationists' reply: God created heaven and earth.

2. On the origin of life: Evolutionists believe that all life on earth is "based on essentially the same genetic code, implying a common origin," that under the right environmental conditions life arose, not by chance, but inevitably. Creationists' reply: God created life.

3. On the development of separate types of life: Most evolutionists believe that once living things began, their activities gradually changed the world; for example, oxygen was added by plants, creating an ozone layer that filtered out ultraviolet rays which permitted plants to survive on land. Animals followed. Man was a latecomer who emerged from earlier vertebrate ancestors. Creationists' reply: God created basic forms of life. Dogs were created as dogs and man was created as man.

4. On the origin of man: On this pivotal point evolutionists theorize that man evolved from lower life forms. Creationists' reply: God created Adam and Eve, who then fell into sin.

5. On the age of the earth and the time of creation: Evolutionists theorize that the earth was created about five billion years ago and that types of life developed over the past three billion years. Creationists reply: The earth was formed about 10,000 years ago as described in Genesis.[84]

No common ground emerged. No viewpoints were changed. With the faith of true believers and the certainty of victory, creationists named the enemy. Judge Braswell Dean of the Georgia Court of Appeals said: "America's current public school curriculum is America's crime curriculum." "The teaching of scientific creationism [from] the book of Genesis would significantly reduce crime in America." He added: The teaching of evolution is "an atheistic, barnyard theory of ethics" and has been the direct cause of "crime, permissiveness, incest, and adultery." A California mother of three said:

> The 'streaking' craze of the 1960s and early '70s was a direct example of what happens when children are taught the theory of evolution. If young people are taught that they have evolved from animals long enough, they'll soon begin to act like them.[85]

Asked why he was there, one participant said, "To learn what we as Christians can do to turn this country away from secular humanism and back to the Bible."[86]

There were workshops on how to gain equal time in the school curriculum and how to rid the school system of "undesirable and objectionable textbooks" (the latter conducted by Mel and Norma Gabler, Longview, Texas, textbook watchers). Exhibit rooms were filled with creationist pamphlets and anti-humanistic education materials.

NABT's Wayne Moyer was not overly worried about the evolution/creationist ideological scrap. "I think the scientific creationist movement eventually will die," he said. "Anybody who takes the trouble to look at this thing will see it for what it is."[87]

"The rise of creationism is politics, pure and simple," explains Harvard University biologist Stephen Jay Gould, a main target of creationist attack. "It represents one issue of the resurgent evangelical right, and arguments that seemed kooky just a decade ago have re-entered the mainstream." [88]

Creationist thought, wrote Robert Lindsey, "is essentially negative. They do not seem determined to prove the book of Genesis right. Rather, they wish to prove the the theory of evolution wrong." [89]

Equal Time

Popular creationist speaker Thomas J. Kindell's pamphlet, How to Introduce Scientific Creationism into the Public Schools, 1981,[90] contains a model "Resolution for Balanced Presentation of Evolution and Scientific Creationism" to be urged on school boards. In it he lists democratic fair-play reasons parents and citizens can use to persuade school authorities to introduce equal time (creation strategists prefer the term "two model approach"):

(1) The public school is a place for students to search for truth;

(2) Only the theory of evolution is presented to students in virtually all courses that discuss the subject of origins and no alternative theory of origins is presented;

(3) Presentation of only the theory of evolution can undermine students' religious convictions;

(4) Presentation of only the theory of evolution without any alternative theory hinders students' search for truth;

(5) Special creation is an alternative model at least as satisfactory as the theory of evolution;

(6) Public School presentation of both evolution and scientific creationism would not violate the Constitution;

(7) Most citizens favor balanced treatment in public schools of alternative scientific theories of origins; and

(8) Teaching both theories does not require or permit instruction in any religious doctrine or materials.

Again stressing the advantages of equal time, Kindell, in his second pamphlet, Questions & Answers on Scientific Creationism in the Public Schools, 1981,[91] says that students respond to equal time with "enthusiasm and attentiveness." He quotes Institute for Creation Research writer Richard Bliss's view "that it would be unconscionable from a pedagogical and scientific point of view to teach only evolution to students in the public high schools."

An advocate of equal time, Spring Arbor College (Mich.) Associate Professor Jerry Bergman, in defending his choice, concludes:

> To exclude discussion of life's origins because they involve religious views does not do justice to the educational enterprise. Some feel that anything related to religion and politics should not be discussed because it arouses emotions and feelings and cannot always be discussed rationally. I would argue that these are the important matters of life and they should indeed be studied, discussed, and debated in the neutral forum of a classroom.[92]

San Diego State University biology Professor Frank T. Awbrey uses equal time as an opportunity to win students to evolution. He write

> We regard the controversy as an opportunity to teach the difference between science and pseudoscience and between knowledge and belief. We do this by inviting Morris, Gish, et al. to give half the lectures in our course. Of the students who shift their position during the semester, almost all shift away from creation 'science.' We have found that evolution, fairly and correctly presented, more than holds its own against the polemics of leading creationists.[93]

"Creationism is religious dogma; evolution is scientific theory," writes University of California (Riverside) biology Professor John A. Moore. "Thus, scientists should oppose the teaching of creationism as science, though no one should object to it or any creation myth being taught as part of the history of religion." [94]

Moore opposes equal time because "Scientific matters are not resolved by democratic procedures." He explained:

> Democracy did not give us the laws of gravitation, the laws of thermodynamics, or Mendel's laws of inheritance. In a science class, creationism is not--indeed cannot be--a part of science because its statements are...based on revelation, not a careful marshalling of data by observation and experimentation. [95]

When the controversy started, Moore noted, scientists ignored it; few felt challenged when no one demanded that creationism be taught in higher education. When he did become involved, he thought he was dealing with a scientific question and set out to counter creationists' arguments scientifically. "But past experience has demonstrated clearly that there is no way to deal, in a scientific way, with determined creationists." "This is a political debate; it is not a scientific one," he said. When one views the creation-evolution battle as politi-

cal, not scientific, he continued, one realizes the difficulty in dealing with it in our democracy, where few political questions are settled for all time.[96]

Of creationists' demand for equal time, writer David Black suggested, "They developed a new strategy, which appealed to their enemies'[the liberals] sense of fair play: equal time. Biology teachers would be forced to divide time between creationism and evolution."[97] He called the creation movement "a slick, well-packaged campaign, run by fundamentalists who are trying to use conservatism as a trojan horse to smuggle the Bible back into public schools." They have chosen to fight evolution, he said, because to them it "denies the unique position of man as the child of God and thus threatens the central premise of their religion."

A disruptive technique creationists used, Black noted, was "picking out quotes from one evolutionist that they then used against another evolutionist, as though disagreement among scientists invalidates science." "They also began promoting debates with evolutionists," he wrote, "In the past five years, there have been about 100 debates they [have] invariably won, because they would use reductionist arguments, contrasting the complexities of evolution with the simplicities of creation, which are easy for general audiences to understand."[98]

President Ronald Reagan's advocacy of equal time is politically potent. The then presidential candidate in Dallas, Texas, August 22, 1980, urged thousands of fundamentalist Christian leaders to get into politics. Questioned at a news conference about the anti-evolution beliefs of fundamentalists, he said:

> It is a scientific theory only, and it is not believed in the scientific community to be infallible as it once was believed. But if it is going to be taught in the schools, then I think the Biblical study of creation should also be taught.[99]

As President, Ronald Reagan repeated this sentiment when he told the Conservative Political Action Conference on March 20, 1981:

> We do not have a separate social agenda, a separate economic agenda, and a separate foreign agenda. We have one agenda.... We ---------- seek to protect the unborn, to end the manipulation of school children by utopian planners and permit the acknowledgement of a Supreme Being in our classrooms.[100]

WHY IS 'SECULAR HUMANISM' THE ENEMY?

If, as perceptive observers say, the real reason for creationists' anti-evolution battle is to restore religious faith to U.S. schools and society, why do fundamentalists and creationists invariably label "secular humanism" the enemy?

"Secular humanism is the main enemy," writes California evangelistic leader Tim LaHaye. "We are being controlled by a small but very influential cadre of committed humanists," says LaHaye, chairman of Californians for Biblical Morality, "who are determined to turn traditionally moral-minded America into an amoral, humanist country." He explains: "They don't call it humanism. They label it DEMOCRACY, but they mean humanism in all its atheistic, amoral depravity." In a letter LaHaye warned thousands of clergymen: "Humanists...are the mortal enemy of all pro-moral Americans, and the most serious threat to our nation in its entire history."[101] In his The Battle of the Mind, 1980[102] (350,000 copies sold), LaHaye writes: "We must remove all humanists from public office and replace them with pro-moral political leaders."[103]

Perhaps in historical perspective one can probe why "humanism" has been targeted the enemy and why a respected term has been made a hated buzzword on which to hang national ills. "Man is the measure of all things," said 5th Century B.C. Greek philosopher Protagoras, the first to articulate humanism. Rediscovery of individualism in ancient Greek and Roman documents evoked the Renaissance literary and intellectual flowering which awoke 14th century Western

Europe from its Middle Age slumber. Renaissance humanism influenced the 18th century Enlightenment, the American and French Revolutions, and check-and-balance rule by the middle class majority instead of by absolute kings under an absolute church.

Offensive to the 1980s evangelicals and creationists, as it was to 18th and 19th century arch-religionists, is for man even to think of taking God's place at the center of the universe, making man an end in himself. This great impertinence rankles many religious people, including the powerful evangelical right characterized by Tim LaHaye, Jerry Falwell, and others of the Moral Majority.

Perhaps because current U.S. problems (really modern Western problems) are so complex, understanding them so difficult, and solving them seemingly so hopeless, zealots such as LaHaye have named "humanism" as the chief ideological enemy. LaHaye writes:

> Either God exists and has given man moral guidelines by which to live, or God is a myth and man is left to determine his own fate. Your response to either position will usually determine your attitude toward such issues as abortion, voluntary school prayer, pornography, homosexuality, capital punishment, the priority you place on traditional family life, and many other social problems.[104]

University of Chicago religion professor Martin Marty finds no evidence of a "humanist conspiracy" or even a significant atheist tradition among U.S. intellectuals. He and others are amazed at religious rightists' condemnation of America's collective sins under one all-purpose term. University of California (Riverside) professor of religious history Edwin S. Gaustad is concerned that the attack on humanism "may be an attack on Western culture itself."[105]

LaHaye and other evangelicals have specific people in mind when they advance the conspiracy theory that humanists have "brainwashed millions of Christians by infiltrating the schools, the media, national organizations, and all levels

of government."[106] The humanist takeover in education, they say, began with John Dewey's progressive philosophy, which caused God to be expelled from the schools. In psychology, humanism substituted the fables of Freud for the truths of scripture, in government humanist sympathizers are socialist one-worlders who gave away the Panama Canal. In the media, amoral humanists have taken over television networks, wire services, motion pictures, news stands, and bookstores.

As proof, fundamentalists point to Humanist Manifesto I (published in 1933), to the American Humanist Association (founded 1941), to Humanist Manifesto II (1973), and to a fall 1980 humanist declaration endorsing science and reason signed by 16 prominent intellectuals, including psychologist B.F. Skinner, author Isaac Asimov, and philosopher Sidney Hook.

LaHaye says there are "275,000 committed Humanists," but identifies only those who have signed recent manifestos. Marty says that the so-called humanist conspiracy is a vast exaggeration, that he could find no one who took the manifestos seriously, and that they were hardly the wave of the future since signers' average age was 77. Humanist magazine editor Paul Kurtz, State University of New York (Buffalo) professor, says secular humanism is a straw man, a scapegoat. "They are looking for someone to blame."[107]

"It's a pervasive campaign, an epidemic, and a real attack on public education," says Dorothy Massie of the National Education Association's Teacher Rights Department. "It's really a witch hunt, only the witches are humanists."[108] "Substitute the word humanist for Communist of the '50s or Bolshevik of the '20s," she concludes.[109]

That fundamentalists are bellicose and demand an enemy to fight is reflected in Jerry Falwell's comment, "If you're going to be successful, keep a fight going all the time."[110]

"The myth of 'secular humanism' in the public schools must be rejected," says James E. Wood, executive director of the Baptist Joint Committee on Public

Affairs, "as dangerous, unfounded and unjustified."[111] When in 1972 the Montgomery County, Maryland, schools were charged with teaching secular humanism, the State Education Board investigated for 21 months at a cost of $200,000 and reported in a 1,600+ page document that they found "no evidence sufficient to show that secular humanism was being taught in the schools."[112]

One can only conclude that "secular humanism" and "evolution theory" are substitute pejorative terms that in fundamentalist and creationist minds stand for the many evils of our time. Calling for "equal time for creation teaching," observers say, is but one strategy for attacking those vast, unsettling ills besetting U.S. society.

WHAT EDUCATORS CAN DO

Anticipate and Prepare Early

Public schools are never far removed from religious, political, or other conflicts. In an open society debate and discussion are healthy, but decency can be pushed aside by those holding extreme positions. It is never too soon to anticipate and prepare a rational procedure for resolving conflict.

Legal Directives

Most state departments of education have legal directives to guide local school units on situations touching the evolution/creation controversy (including such matters as teaching religion and other controversial topics and on textbook selection). Having an active and informed "Procedures Committee" charged with dealing with conflict situations (legally and extra-legally) who know the legal directives helps forestall difficulty and also helps lessen its impact when conflict occurs. If states permit local school option on teaching controversial topics, a Procedures Committee has an even better opportunity to think through and prepare for problems likely to arise.

Collect Information

(1) Such a Procedures Committee can send for, assemble, and make available in a school library or public library policy statements on evolution/creation (such as are represented in the Policy Section of this PDK Fastback) from:

--National science and national educational organizations

--State and local science and educational organizations

--State departments of education

--Local school districts and other school units

(2) An ERIC and other data-based literature search done periodically will provide bibliographic data with abstracts of the growing literature on evolution/creation teaching and relevant materials.

(3) Have available current standard directories with addresses and phone numbers of national, state, and local organizations to contact for literature and advice; for example: National Council of Teachers of English, National School Board Association, National Education Association, American Federation of Teachers, and others. Two of the most knowledgeable and helpful organizations on evolution/creation are:

(a) On legal aspects: American Civil Liberties Union, 132 West 43rd St., New York, NY 10036; Telephone (212) 944-9800 (ACLU has offices in each state and 3 regional offices).

(b) On scientific aspects: National Association of Biology Teachers, 11250 Roger Bacon Drive, #13, Reston, VA 22090; Telephone (703) 471-1134. This largest association of professional biology teachers has published an invaluable A Compendium of Information on the Theory of Evolution and the Evolution-Creationism Controversy, ed. by Jerry P. Lightner, revised Feb. 8, 1978, 118 pp., $4. NABT also publishes a newsletter which reports regularly on evolution/creation news: Scientific Integrity (since December 1980),

$5 subscription.

(4) A quarterly journal that answers arguments raised by creationists: CREATION/EVOLUTION, 953 Eighth Avenue, Suite 209, San Diego, Calif. 92101, $8 subscription.

Procedures Committee

Besides assembling, maintaining, and using a library of information, this committee can discreetly:

(1) Gauge community feelings and find out:

(a) How aware the community is of the evolution/creation controversy; how parents feel; how students feel;

(b) What pressure groups exist (their beliefs, motives, financing, tactics);

(c) How to share balanced materials and views on the controversy with concerned groups.

(2) Establish procedures: Clearly articulated procedures help reduce conflict, such as having complaints written and signed, having a committee to review and respond to complaints, having time to review complaints, having available for distribution policy statements and/or the legal constraints under which the school unit must operate.

(3) Committee homework: Pressure groups wanting to influence the schools develop predictable strategies, often designed by national organizations whose carefully planned campaigns are aimed at success. (Those involved, for example, warn against formal debates with professional creationists, who are skillfully prepared to make converts and to undercut scientific arguments.) Early committee homework on extremist organizations can help school units prevent being unwittingly taken in. True believers do not easily change their own views. The key may lie in influencing those opinion leaders in the community who can then guide parents and citizens on the sidelines who are susceptible to the rhetoric and tactics of extreme organizations.

Committees of Correspondence

In 35 states biologists, scientists, and others concerned about the evolution/creation controversy have established voluntary, independent committees of correspondence willing to help with advice and materials when asked. Contact persons are: Iowa Academy of Science Panel on Controversial Issues, Stan Weinberg, coordinator, 156 East Alta Vista, Ottumwa, Iowa 52501, Telephone (515) 682-7321; and David Kraus, 261 Beach 138th Street, Belle Harbor, NY 11694.

Strengthening Science Teaching

University of California (Riverside) biology Professor John A. Moore and other scientists increasingly believe that inadequate science understanding in schools and among Americans generally contributes in part to the rise and spread of evolution/creation teaching controversy. The natural tendency for schools to avoid controversy comes at a time of appalling citizen ignorance about the nature of science, as indicated by the 1977 National Assessment of Education Progress reports.

Americans' love-hate attitude about science, Moore suggests, is indicated by a liking for its material, medical, and other benefits. But science is disliked by fundamentalists and others who see it as contributing to moral decline and a rejection of tradition. They blame science for increases in crime, immorality, and individual alienation. Too many see science "as a device for making the powerful more powerful and the weak even weaker," he wrote.

The long-term solution, he suggests, is to redesign higher education science courses to show more clearly the relationship between science and society, perhaps focusing on non-majors in order to produce better informed citizens. Another reason to improve university-level science is to help prepare better elementary and secondary science teachers who then transmit science knowledge to their students. The vast 1960-70 high school curriculum revision goal of increasing

understanding of science through inquiry and discovery, he thinks, has not been fulfilled. Instead, a 1978 Gallup poll showed that among 16-18 year-olds, 71% believed in ESP, 64% in angels, 28% in witchcraft, and 21% in ghosts.[113]

Conclusion

University of California (Riverside) biologist John A. Moore in 1979 said, that the courts, not scientists nor educators, stopped equal-time evolution/creationism teaching from becoming law. But such laws have since passed in several states. Creationism advanced as the Moral Majority, rising fundamentalism, and political conservatism flourished. For public school educators not to protest equal-time evolution/creation teaching is to aid creationist gains in teaching religion.

Creationist inroads came as confidence in public schools ebbed, test scores declined, enrollments fell, teachers were laid off, education budgets were cut, federal downgrading of education continued, and Congress considered vouchers and tax credits to aid private schools at public school expense. These downturns tarnish the future promise of historian Henry Steele Commager's belief that "public schools have kept us free."

An optimistic view is that more scientists, educators, and citizens are now opposing equal-time evolution/creation teaching; that creationists are a small part of the diverse spectrum of conservatives among whom serious divisions exist (old guard conservative Barry Goldwater on September 15, 1981, attacked the new religious right's absolutism on moral issues); that creationists and Moral Majoritarians cannot win in courts, public opinion, or among old line political conservatives on single issues such as prayer in public schools and equal-time evolution/creation teaching.

What course will prevail depends on Americans' faith in time-honored constitutional safeguards, on recalling dangers that state-enforced morality pose to

liberty and progress, and agreeing that religion and ethics at home and in church are as necessary to future freedom as are unfettered science and critical thought in public schools.

In the U.S., where the people decide, the hope is that alert citizens will continue to choose knowledge over ignorance. In Thomas Jefferson's words: a nation that is ignorant and free is something that never was and never will be.

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